C ontrol system based on a
H ighly
A bstracted and
O pen
S tructure

WP3 STATUS 8/7/2014

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ESCO use case

- Conditioning control of LNF building 36 (Alte Energie)
- UTA control that serves Touschek Meeting Room
- The control is realized distributing BeagleBone running CHAOS connected to sensors, valves and motor unit.
- We provide a dashboard to allow a manual remote control of the UTA and the conditioning machine.
- We provide and experiment different control algorithms in order to minimize power consumption and maximize the comfort of the users.

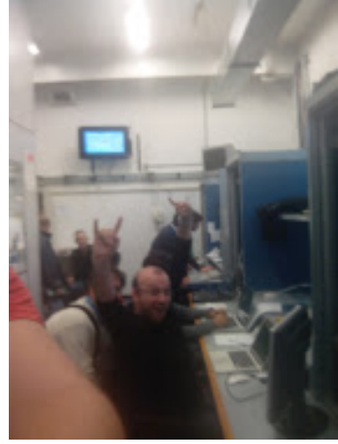
Platforms: Beagle Bone + sensors and actuators

(lists: https://opensource.lnf.infn.it/wiki/display/EUC/ESCO+USE+CASE)

ESCO Status

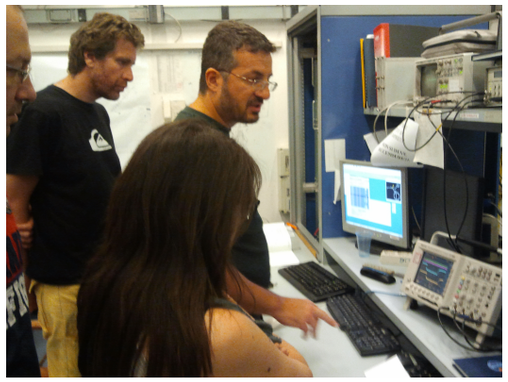
- !CHAOS funds are now ready, buy HW ➔ongoing
- Bring Ethernet in the UTA room ➔ongoing
- Install BeagleBones + sensors/actuators ➔ delayed to August/September
- Start playing ➔mid September
- Remote Control dashboard➔end September
- Remote Control alghorithms ➔end October

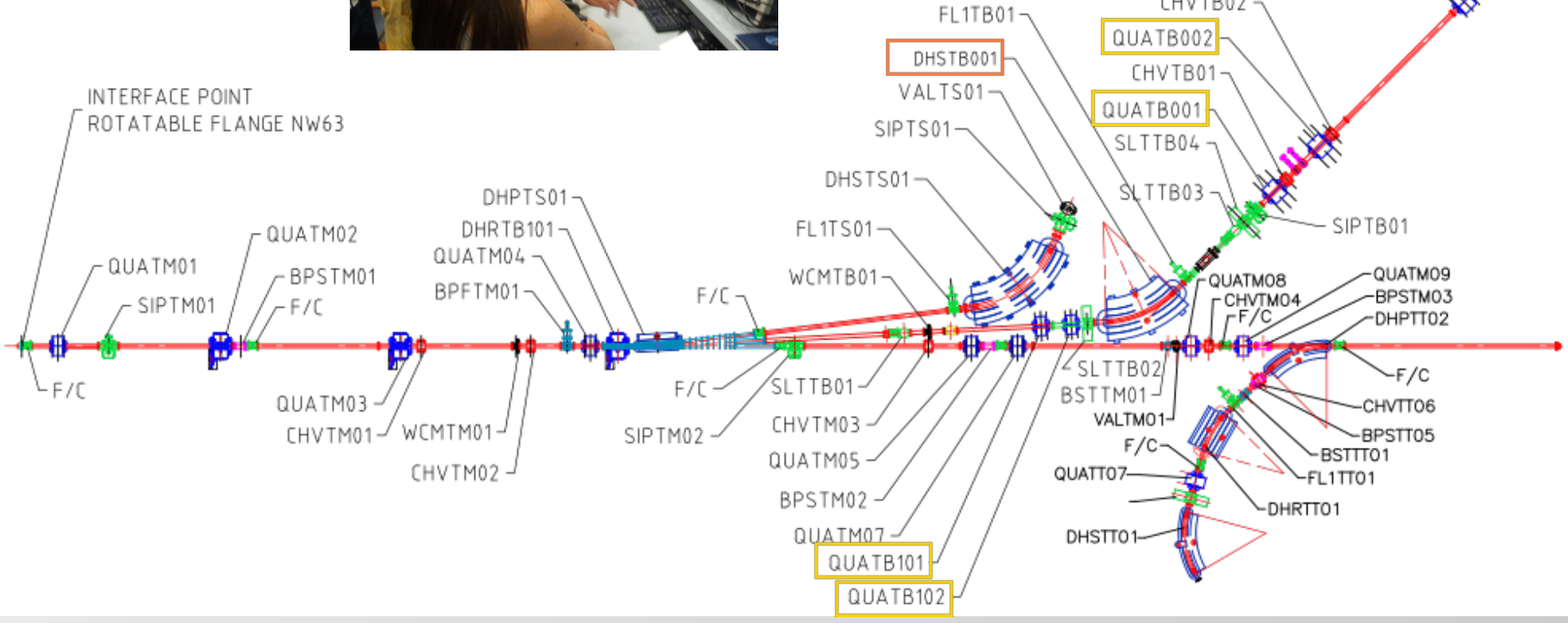
Accelerator use case



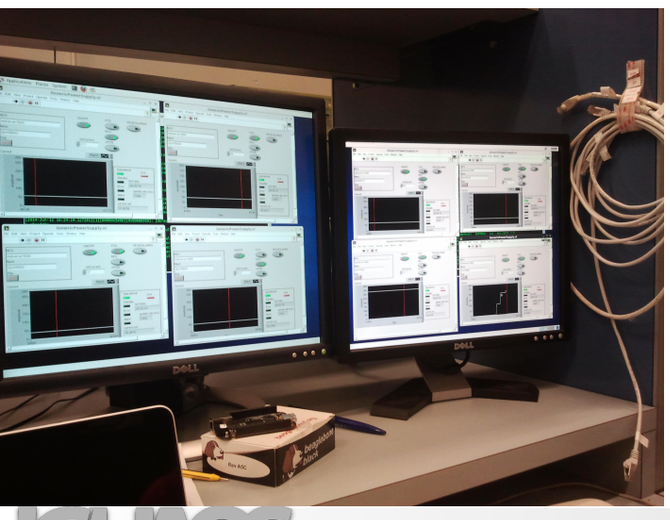
- Control of the magnets that drive the beam to the BTF HALL
- DAQ system (or portion of that) of the BTF under !CHAOS

Platforms: NI CRIO (9068) Linux RT (DAQ), beagle+RS485 CAPE for power supplies





labVIEW based !CHAOS interface



Accelerator status

- RUN of !CHAOS from 9/06 to 13/06 on BTF ok.
- Control UIs, realized on LV that interface !CHAOS => done
- DAQ subsystem => not yet started

This run helped to identify and correct bugs on the !CHAOS core and on the drivers of power supplies.

This run also pointed out that it’s time to face the implementation of configuration tools.

Not only C++… Opening !CHAOS to world

Open !CHAOS not only to labVIEW, but also to Java, Javascript, Matlab worlds.

Our “near clients” are in fact:

- Machine Physicists and Technicians: LabVIEW app
- Scientists: LabVIEW and Matlab app
- Me and many others: client and server side WEB applications are suitable to interface with !CHAOS

Not only C++… Task Force:

Paolo Buzzi (INFN-PG): server side JAVA !CHAOS wrappers and utility applications.

Pierandrea Conti(Gonville College, Cambridge): Matlab !CHAOS wrappers.

Eliana Gioscio (INFN-LNF),20% Paolo Ciuffetti (INFN-LNF): cross platform client side Javascript class widgets (powersupplies, thermometers…) and dynamic interfaces.

thanks you